US006081802A

United States Patent [19]

Atherton et al.

[11] Patent Number: 6,081,802

[45] Date of Patent: Jun. 27, 2000

[54] **SYSTEM AND METHOD FOR ACCESSING COMPACTLY STORED MAP ELEMENT INFORMATION FROM MEMORY**

[75] Inventors: **Mark Blelock Atherton**, Issaquah; **Paul Sean Harrington**, Seattle, both of Wash.

[73] Assignee: **Microsoft Corporation**, Redmond, Wash.

[21] Appl. No.: **08/909,805**

[22] Filed: **Aug. 12, 1997**

[51] **Int. Cl.**[7] **G06F 17/00**

[52] **U.S. Cl.** **707/3**; 707/200; 707/4; 707/5

[58] **Field of Search** 707/1–206; 711/146; 345/432; 375/341; 348/146

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Primary Examiner—Thomas G. Black
Assistant Examiner—David Y. Jung
Attorney, Agent, or Firm—Jones & Askew, LLP

[57] **ABSTRACT**

Accessing compactly stored map element information from memory using a received encoded identification reference which identifies a map element, such as a link or a node. A link represents a thoroughfare on a map and a node represents an end point of a thoroughfare on the map. A block number is determined and an offset value is determined from the map element's identification reference. The block number provides a memory address for the beginning of a block of memory representing a region of the map. The offset value is a memory offset relative to the block's memory address. If the block referenced by the block number has not yet been loaded, the block having information about the map element is loaded. Once loaded, the information about each link type of map element in the region is read. The link information is stored within a designated part of a block data structure. Additionally, the link information is used to reconstruct information about the map region's node type of map elements. Once reconstructed, the node information is stored within another part of the block data structure. The block data structure remains in a memory cache so that information about the map element can be quickly accessed while information about the map element remains compactly stored in the block of memory.

20 Claims, 6 Drawing Sheets